



# CITY OF BOSTON

*Thomas M. Menino, Mayor*  
Environmental and Energy Services  
*James W. Hunt, III, Chief*

## FIRST ANNUAL MEETING

Tucson, Arizona  
April 15, 2008

**Bradford Swing**  
Director of Energy Policy  
City of Boston, Office of the Mayor  
Environmental and Energy Services

**Wilson Rickerson**  
Solar Boston Program Coordinator  
Rickerson Energy Strategies





# Climate Action Plan

2000: Boston joins ICLEI—Cities for Climate Protection

2005: U.S. Mayors Climate Protection Agreement  
*Kyoto Protocol targets*

2007: **Executive Order Relative to Climate Action:**  
– **Greenhouse Gas Emissions reduction goals:**

- 7% below 1990 levels by 2012
- 80% below 1990 levels by 2050



# Solar Boston Program

**\$500,000 GRANT AWARDED JUNE 2007**



**US Department of Energy**

Solar America Initiative (SAI) --Solar City Strategic Partnerships

## **Solar Boston Partnership**

- Map Boston
- Market to target groups

## **Boston Energy Alliance, Inc.**

- One-stop shop for RE/EE/DG
- Bulk Purchase
- \$500,000,000 in financing
- Bulk Installation

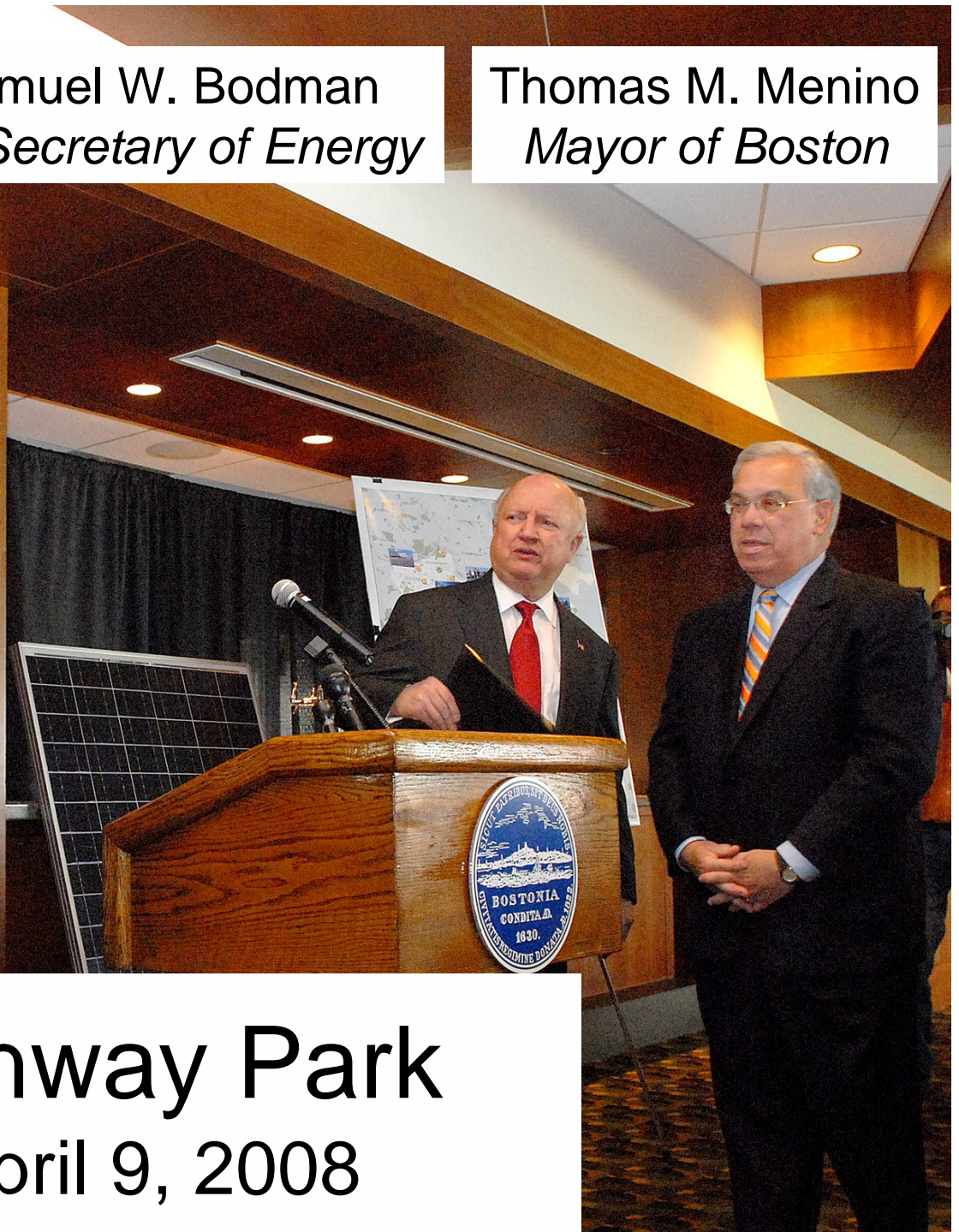


Mayor Menino dedicates 2.4 kW PV System  
Boston Arts Academy - 2005



Samuel W. Bodman  
*US Secretary of Energy*

Thomas M. Menino  
*Mayor of Boston*



Fenway Park  
April 9, 2008



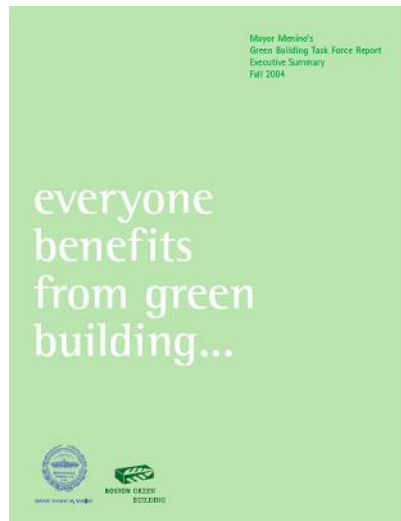


# Fenway Park Event

- Mayor announces:
  - 25 MW by 2015 for Boston
  - \$500,000 for four municipal PV projects
  - NREL on roof of Police HQ (Otto Van Geet)
- Red Sox announce solar hot water to meet 37% of demand
- Commonwealth of Massachusetts announces \$50,000 grant for 15 SWH engineering studies on City buildings

# *Building the Case for Boston's Green Building Policy*

**11 New York University Journal of Legislation & Public Policy (2008)**



- 1999:** Earth Day Green Building Charrette
- 2000:** *A Building That Teaches* (Report)
- Oct. 2002:** George Robert White Environmental Conservation Center
- 2003-2004:** Mayor's Green Building Task Force Convenes
- Nov. 2004:** Task Force Issues Recommendations  
Mayor Announces Three Year Implementation Plan
- June 2006:** \$2 million Green Affordable Housing grant award
- Jan. 2007** Boston Zoning Commission revises Article 80  
Adopts new Article 37
- April 2007** Mayor's *Executive Order Relative to Climate Action*

# Green Building Action Plan

- All private projects over 50,000 square feet must be LEED “Certifiable”
- All public projects must be LEED Silver certified
- *10 million* square feet of LEED construction is currently in the pipeline.



John Hancock Building



Brigham & Women's Hospital

# Green Affordable Housing Program

- Department of Neighborhood Development (DND)
- \$2 million from Massachusetts Technology Collaborative
- 140 kW on 240 units of housing
- All housing must now be:
  - LEED Silver certifiable
  - ENERGY STAR or equivalent
  - PV ready



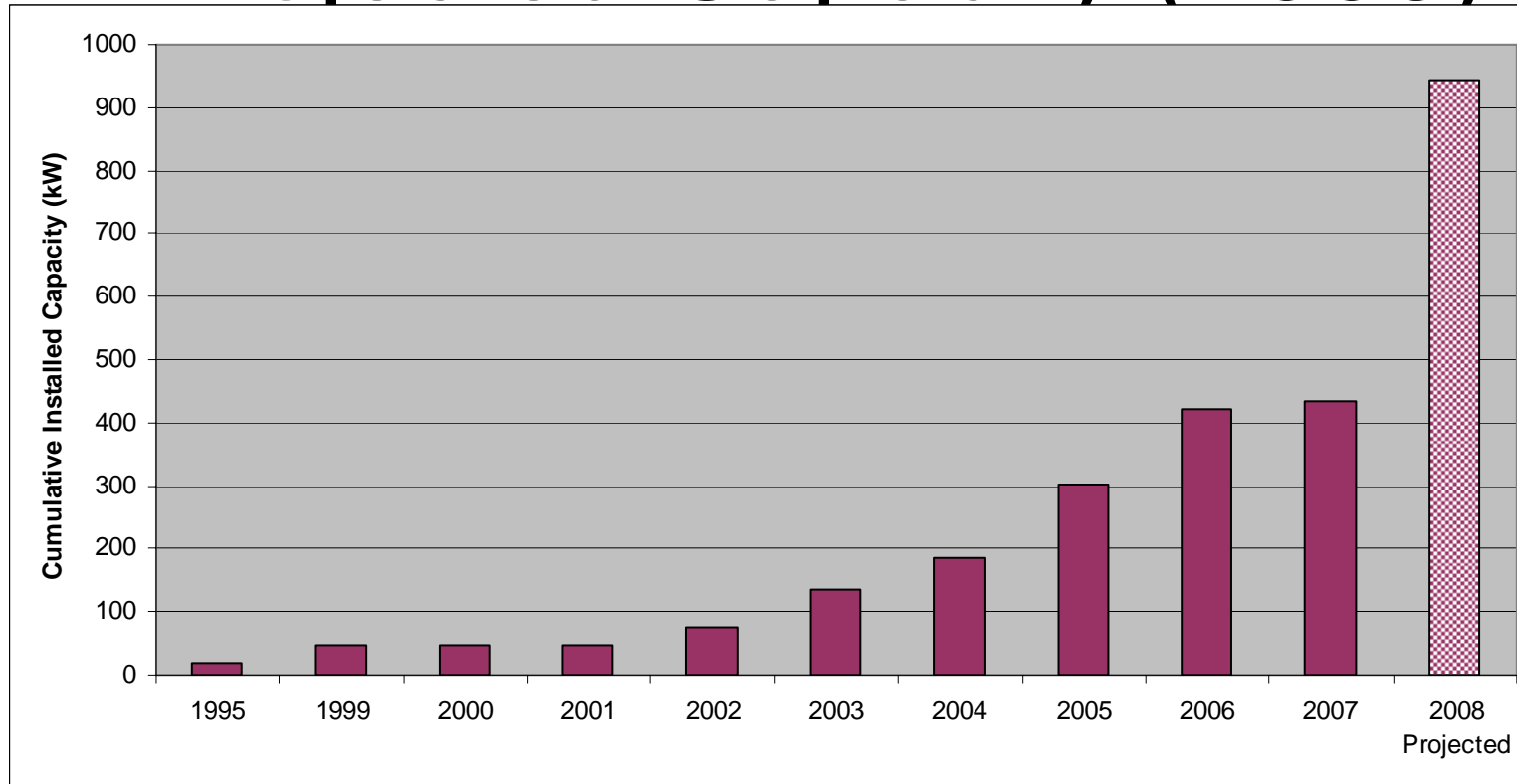


# PV on Affordable Housing

- Department of Neighborhood Development
  - All buildings LEED Silver
  - All buildings ENERGY STAR or equivalent
  - All buildings solar ready
- Boston Housing Authority
  - Maverick Landing (37 kW)
  - Franklin Hill (28 kW)
  - Exploring performance contract that includes 115-120 kW of PV
- Boston Community Capital
  - 1.5 MW on affordable housing
  - Third-party ownership



# Projected Capacity (2008)

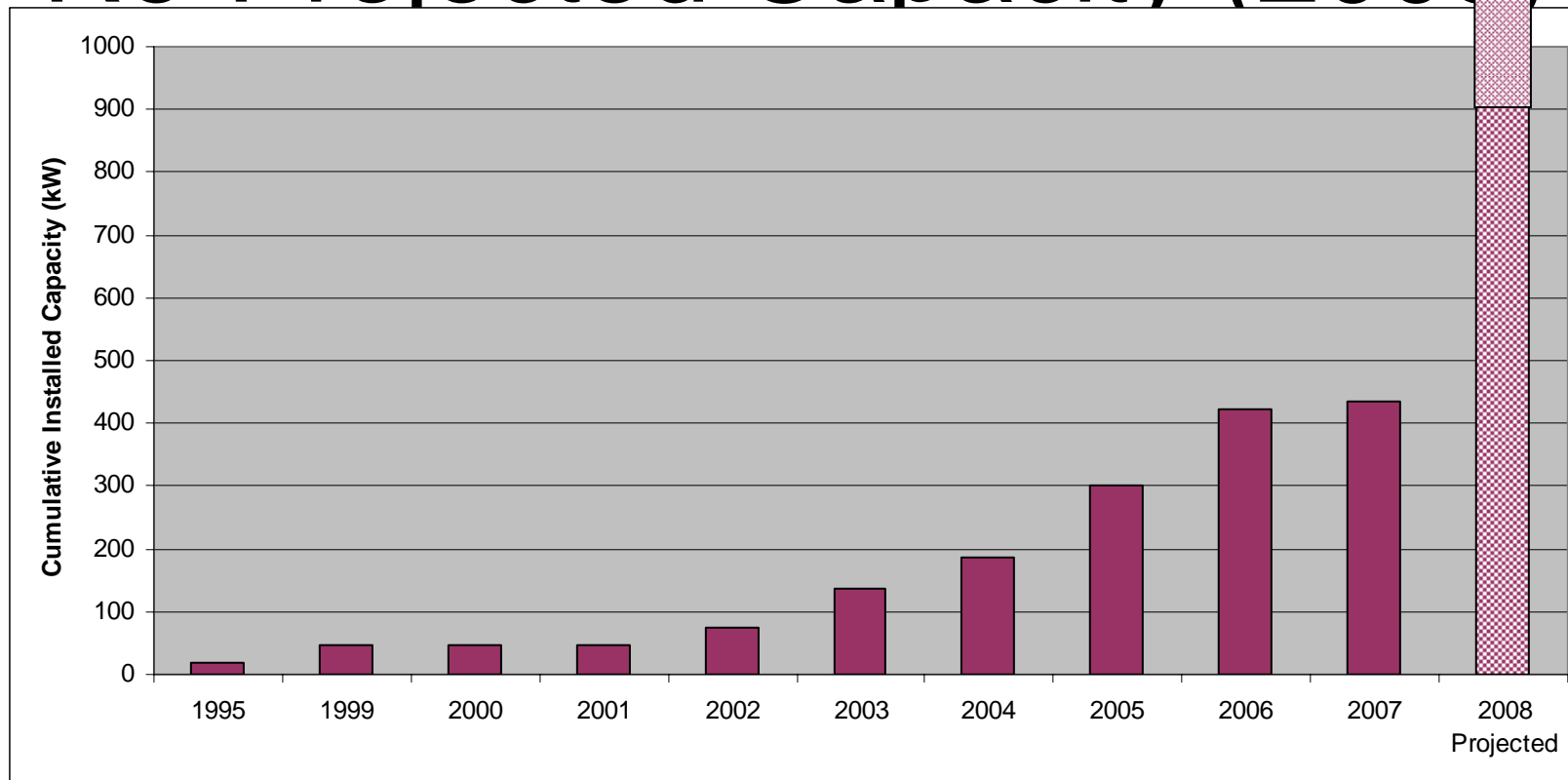


Source: MTC, Solar Boston survey, 2007

~943 kilowatts



# Re-Projected Capacity (2008)



Source: MTC, Solar Boston survey, 2007

With Affordable Housing:  
1,770 kilowatts

# Next Steps?

- Solar zoning?
  - Battery Park City Authority
  - Barcelona
  - Fingal County, Ireland
  - DOE Solar Cities



Photo:  
Hinin



# Questions?

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# APPENDIX

## Green Building Zoning Language



# Article 37- **GREEN BUILDINGS**

Article inserted on **January 10, 2007**

**SECTION 37-1. Statement of Purpose.** The purposes of this article are to ensure that major building projects are planned, designed, constructed, and managed to minimize adverse environmental impacts; to conserve natural resources; to promote sustainable development; and to enhance the quality of life in Boston.

# Article 37-Applicability

## SECTION 37-3.

“Any Proposed Project which is subject to or shall elect to comply with Section 80B of this Code, **Large Project Review**, shall be subject to the requirements of this article.”

[50,000 square feet = Threshold]

# Article 37-2 -- Definitions

**“Boston Green Building Credits”**, Credits identified in this article that may be included in the calculation toward achieving a LEED Certifiable project under the provisions of this article.

**“Boston Interagency Green Building Committee”**, an interdisciplinary committee consisting of at least one (1), but not more than two (2) representatives of city agencies including but not limited to, the Boston Redevelopment Authority, the Boston Environment Department, the Boston Transportation Department, the Inspectional Services Department and the Mayor’s Office.

**“LEED Certifiable”**, a structure that is planned, designed and constructed to achieve the level “certified” using the LEED building rating system most appropriate for the Proposed Project.



# Boston Green Building Credits

## Mayoral Priorities

### **Boston Green Building Credits**

- Any Proposed Project subject to the provisions of this article may obtain a maximum of four (4) of the required points from the Boston Green Building Credits which will be **included in the calculation toward achieving a LEED Certifiable project** under this article. One point may be awarded for each of the following four categories:
  - Modern Grid;
  - Historic Preservation;
  - Groundwater Recharge; and
  - Modern Mobility.

# Boston Green Points- Prerequisite

In order to be eligible for the Boston Green Building Credits, a plan must be submitted to the Boston Redevelopment Authority to meet the following **Boston Public Health Commission prerequisites:**

- a. Retrofit of all diesel construction vehicles, from the United States Environmental Protection Agency approved retrofit technologies, as applicable, or contribution of a comparable amount to the Air Pollution Control Commission Abatement Fund;
- b. An outdoor construction management plan including provisions for wheel washing, site vacuuming, truck covers and anti-idling signage; and,
- c. Integrated pest management plan.

# Boston Green Point / Modern Grid

## 1. Modern Grid

- One point will be awarded if a Proposed Project qualifies as a **Distributed Generation/Combined Heat and Power (DG/CHP)** project that provides **useful “congestion relief”** in locations where the Boston Redevelopment Authority and Boston Environment and Energy Services determine that electricity distribution load constraints exist. In order to earn this point the Proposed Project must include an on-site combined electrical power and heat generation system that provides for ten percent (10%) or more of the total building energy use. Eligible systems include combustion engine driven generators, fuel cells and micro turbines that utilize clean fuels including natural gas and biodiesel.
- This provides value in reducing both transmission and distribution-level costs.



# Boston Green Point – Historic Preservation

## 2. Historic Preservation

- This point will be awarded if a Proposed Project involves the historic renovation of an existing structure and recognizes the importance of preserving Boston's historic assets. In order to earn this point the Proposed Project must include the historic renovation of an existing structure which complies with the applicable historic preservation regulations and design guidelines including building and site materials and features. Structures must be located in a historic district or listed in the National Register of Historic Places, the State Register of Historic Places, or the Inventory of Historic and Archaeological Assets of the Commonwealth.

# Boston Green Point-Groundwater

## 3. Groundwater Recharge

- a. In areas subject to Article 32, Groundwater Conservation Overlay District, one point will be awarded for Proposed Projects that provide fifty percent (50%) greater recharge than required under Article 32-6 (i.e., *capturing within a suitably-designed system a volume of rainfall on the lot equivalent to no less than 1.5 inches across that portion of the surface area of the lot to be occupied by the Proposed Project*); or
- b. For Proposed Projects in areas not governed by Article 32 and located in areas of filled land, one point will be awarded for Proposed Projects that capture a volume of rainwater on the lot equivalent to no less than one inch across that portion of the surface area of the lot to be occupied by the Proposed Project, or provide measures that otherwise result in on-site infiltration of rainwater including landscape irrigation. Applicants must demonstrate how combined building systems will meet this standard including area absorption/retention calculations.

# Boston Green Point-Modern Mobility

## 4. Modern Mobility

This point will be awarded for Proposed Projects that meet all of the Transportation Demand Management (“TDM”) Prerequisites and implement the required actions from the menu of TDM Options as set forth below